

An evolving standard: IEEE 1012 Standard for Verification and Validation

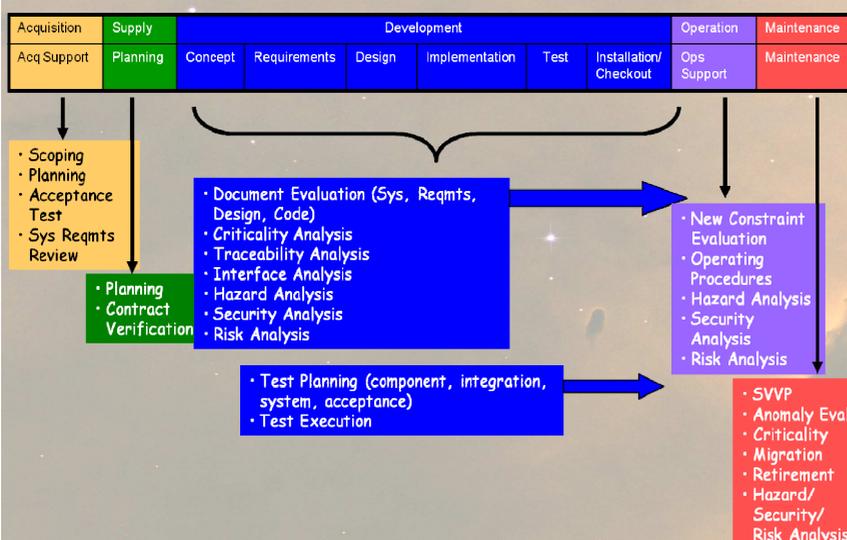
The IEEE Standard for Verification and Validation is one of the most popular of the IEEE Computer Society Standards

Used throughout numerous industries for the development of mission and safety critical software

- . Depart of Energy (nuclear power plants)
- . Food and Drug Administration (industrial as well as personal medical devices)
- . Department of Defense
- . Department of Homeland Security
- . And many more

Overview of IEEE1012-2004

- . Structured around IEEE12207-1997 Standard for Information Technology—Software Life Cycle Processes
- . Tied to the 12207-1997 life cycle model
- . Supports early and full project life cycle involvement
- . Provides the requirements for V&V, not how to do V&V



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Standards Evolution

- . Guiding desire to move to a process centric approach
- . On-going harmonization efforts between IEEE and ISO—resulted in updated ISO15288 Systems Engineering Life Cycle Processes and the new IEEE12207 Standard for Systems and Software—Software Life Cycle Processes

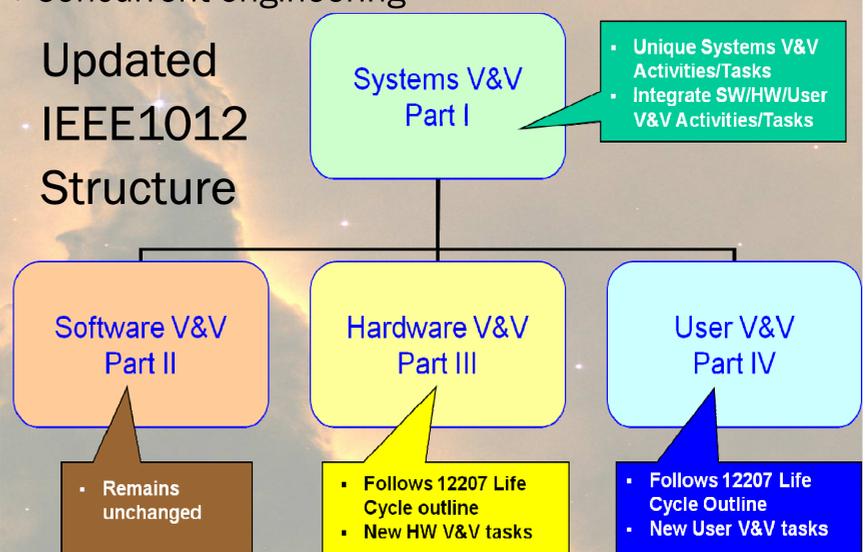
Need to update 1012

- . Harmonization with the new standards
- . Realization of need to expand into systems V&V—synchronize with ISO15288

Challenges to the update

- . Enhanced criteria for COTS and reusable software
- . Process identification for hardware V&V
- . Development of complex electronics with software development tool
- . Non-deterministic systems
- . Concurrent engineering

Updated IEEE1012 Structure



NASA Independent
Verification and Validation
Facility
Fairmont, West Virginia

